

Packaging and Testing of Mode-Locked Lasers

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Future high bandwidth WDM/TDM optical communication systems would greatly benefit from a source of optical pulses at very high data rates for WDM soliton communications. Mode-locked lasers are a potential source at high repetition rates (>10 GHz), where monolithic cavities can be easily fabricated with reasonable cavity lengths (<5 mm). In our work, mode-locked lasers in the colliding pulse (CPM) configuration have been used to generate short optical pulses (<10 ps) at high repetition rates (18 GHz). A DBR grating is incorporated in the monolithic mode-locked laser cavity to set the center wavelength of each device.

System implementation requires complete packaging of the mode-locked lasers. Extensive testing of the devices has led to the development of rules for screening the mode-locked lasers for packaging, based on the optical and RF performance. This paper will address the unique issues associated with the packaging and testing of high speed mode-locked lasers.